Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Rock Creek

Waterbody Segment at a Glance:

County:	Jefferson
Nearby Cities:	Kimmswick, Imperial
Length of impairment:	2 miles
Pollutants:	BOD and NH_3-N
Source 1:	West Elm – Black Creek Treatment Plant
Source 2:	Seckman Valley WWTP

TMDL Priority Ranking: High

State map showing location of watershed

Description of the Problem

Beneficial uses of Rock Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption.

Use that is impaired

- Protection of Warm Water Aquatic Life

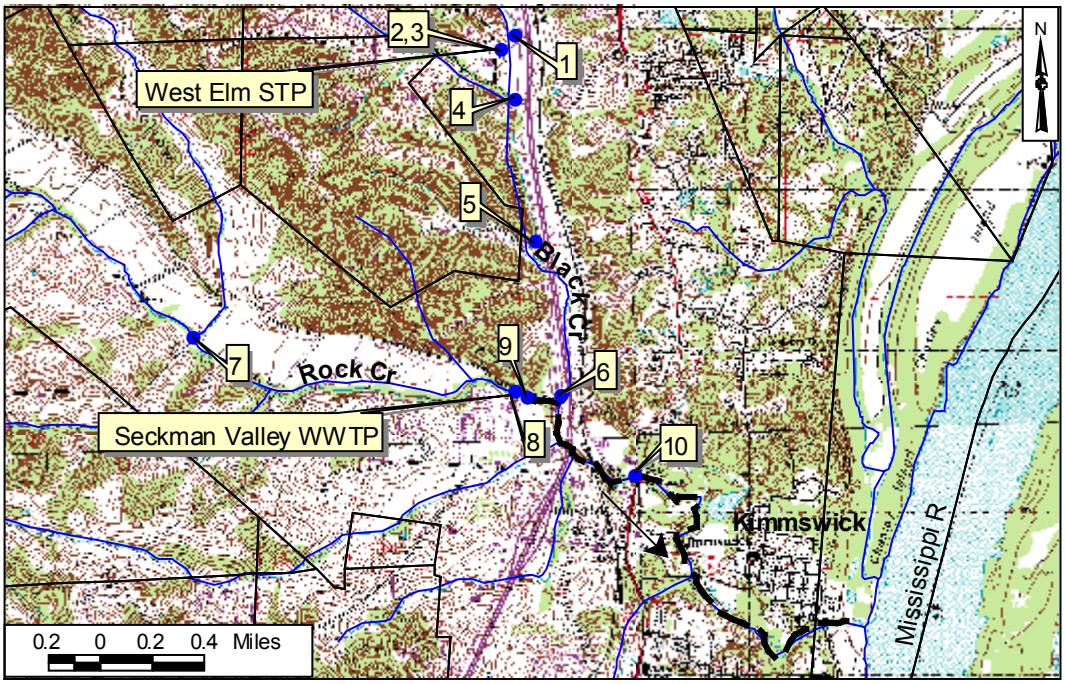
Standards that apply

- The Missouri Water Quality Standard for dissolved oxygen (related to BOD) in streams is 5.0 milligrams per liter (mg/L) or parts per million. This is cited in 10 CSR 20-7.031 Table A.
- Ammonia (NH_3-N) standards vary depending on the pH and the temperature. The ammonia limits that apply (at a pH of 7.8) are 1.2 mg/L for summer and 2.0 mg/L during the winter. The tables are found in 10 CSR 20-7.031 Table B.

The problems in Rock Creek come from the discharges of two wastewater treatment plants (WWTP), West Elm Place and Imperial Utility Corp, Seckman Valley. West Elm Place actually discharges into Black Creek, an unclassified tributary to Rock Creek. Wastewater that is high in BOD (Biochemical Oxygen Demand) lowers the oxygen in a stream and most aquatic organisms require high levels of oxygen to survive. In addition, ammonia is a common by-product of wastewater treatment and can be toxic to aquatic life. Due to population increase, these facilities discharge as much or more water than they were designed to handle. Frequent violations of Water Quality Standards for BOD and ammonia have occurred in Rock Creek. These violations occur during dry weather conditions when the effluent (discharged water) dominates the stream flow.

The TMDL was written and approved Dec. 1, 1999. There is little likelihood that Seckman Valley or West Elm Place can meet the stringent effluent limits required by the waste load allocations established in these TMDLs. While the facilities have the option to upgrade in order to meet applicable water quality standards, a project is currently under design and review to have the facilities eliminated and their sewer lines connected to the Rock Creek Regional WWTP at Kimmswick. These connections should be completed by 2004.

Map of Impaired Section of Rock Creek with Location of Sampling Sites and Treatment Plants

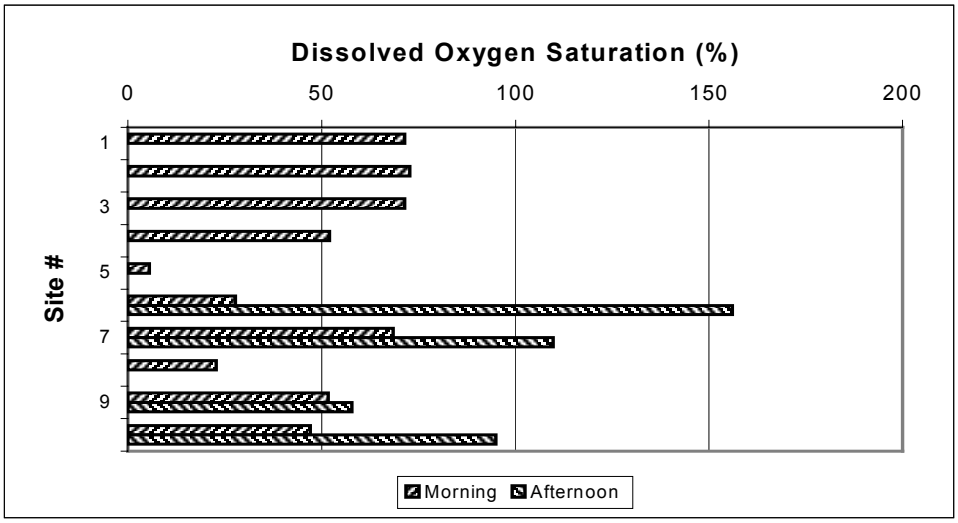


Impaired Segment → Direction of Flow

Site Legend

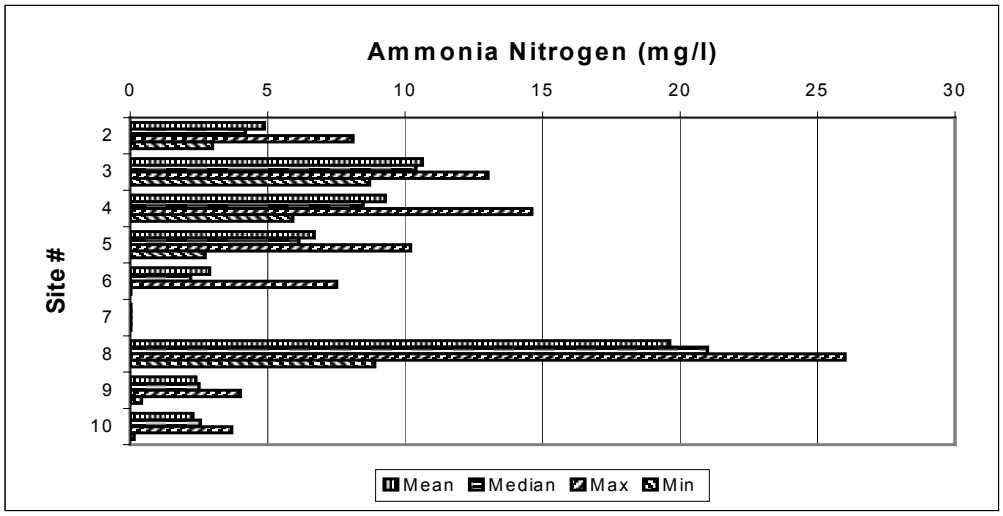
1 – Black Creek just above Black Creek WWTP
2 – Black Creek effluent – North outfall
3 – Black Creek effluent – South outfall
4 – Black Creek 50 yards below Black Creek WWTP
5 – Black Creek 0.8 mile below Black Creek WWTP
6 – Black Creek near mouth
7 – Rock Creek just upstream from Mastadon State Park
8 – IUC I-55 wastewater lagoon
9 – Rock Creek 0.2 mile below IUC I-55 wastewater lagoon
10 – Rock Creek 0.5 mile below confluence with Black Creek

Average dissolved oxygen saturation at sample sites in Rock Creek and Black Creek. Samples taken in July and October 1992 and July 1995. Afternoon data at sites #1 through #5 and #8 are not available



Dissolved Oxygen Saturation below 80 percent is considered harmful to aquatic life
Source: Missouri Department of Natural Resources

Ammonia Nitrogen levels at sample sites in Rock Creek and Black Creek



Source: Missouri Department of Natural Resources

For more information call or write:
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